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March 31, 1995

Mr. William F. Caton
Acting Secretary
Federal Communications Commission
Room 222
1919 M Street, N.W.
Washington, D.C. 20554

Re: WT Docket No. 95-17
Notice of Proposed Rule Making

Dear Mr. Caton:

Enclosed are ten copies (original and nine) of the comments prepared by this office in the Notice of Proposed Rule Making, *"In the Matter of Amendment of Parts 73 and 74 of the Commission's Rules to More Effectively Protect Radio Astronomy Activity on Channel 37"*.

If there are any questions or comments concerning this filing, please contact the undersigned.

Sincerely,

Donald G. Everist

DGE:mcw
Enclosure

COHEN, DIPPELL AND EVERIST, P. C.

Before the
Federal Communications Commission
Washington, D.C.

In the Matter of	)	DOCKET FILE COPY ORIGINAL
Amendment of Parts 73 and 74 of the Commission's Rules to More Effectively Protect Radio Astronomy Activity on Channel 37	))))	MM Docket No. 95-17

COHEN, DIPPELL AND EVERIST, P.C.
NOTICE OF PROPOSED RULE MAKING

Introduction

The following comments are provided by Cohen, Dippell and Everist, P.C., Consulting Engineers ("CDE") on the *Notice of Proposed Rule Making ("Notice")* in MM Docket 95-17, adopted January 27, 1995 (released February 21, 1995). CDE and its predecessors have practiced before the Federal Communications Commission ("Commission") for more than fifty (50) years, representing the broadcast industry on professional engineering matters.

In the *Notice*, the Commission has addressed certain issues relating to the protection of radio astronomy operations on Channel 37 of the UHF television broadcasting band. The Commission proposes to amend Part 73 and 74 of the Rules to include the geographical coordinates of 13 radio astronomy sites where TV Channel 37 frequencies (608-614 MHz) are used for radio astronomy observations.

UHF-TV Channel 37 is reserved exclusively for radio astronomy service under the Commission's Rules and Regulations and no transmitting stations of any type are authorized between 608-614 MHz. In the *Notice*, the Commission has proposed to restrict allotments of

UHF TV Channels 36 and 38 within 87.7 kilometers (54.5 mile) of any radio astronomy reference site unless a showing can be made that the signal from the new facility would not exceed 64 dBu at the radio astronomy sites. The Commission has also proposed 64 dBu signal level restriction on the new and modified facilities of Channel 36 and 38 TV stations including low power TV, TV translator and booster operations.

Comments

CDE agrees with the Commission that a signal level restriction at the astronomy sites would be less burdensome and provide more flexibility to the broadcasters than a requirement of fixed minimum distance separation from the astronomy sites.

In adopting maximum a signal level at the astronomy sites, we urge the Commission to review and analyze NTSC as well as the proposed Advanced Television System (ATV). In particular, the Commission should review out-of-band characteristics of the proposed Advanced Television System (ATV). In MM Docket No. 87-268, the Commission has addressed various issues relating to the development of channel allotments for ATV service. Since the grand alliance ATV system is purely digital, the effect of out-of-band emissions from Channel 36 and 38 ATV operations to radio astronomy systems needs to be further explored in this rule making. CDE has observed spectrum analyzer plots of in-band signal levels and out-of-band emissions and finds that out-of-band radiation levels are typically 35 dB to 40 dB below the in-band signal levels. Accordingly, CDE believes that the Commission should fully explore appropriate maximum undesired Channel 36 and 38 ATV service signal levels at the radio astronomy

reference sites. CDE expects that the permissible ATV field strength will be substantially lower than the 64 dBu value proposed for NTSC television operations.

While CDE is not recommending a specific maximum desired first-adjacent channel field strength at each radio astronomy site, it wishes to address the prediction methodology that will be used to compute the TV signal level. Under paragraph 9 of the Notice, the Commission has proposed that the compliance with the field strength restriction would be determined by using its standard prediction method and F(50,50) propagation curves. We believe the Commission's standard prediction method which is based on the 3 to 16 kilometers intervening terrain data does not provide a realistic signal level determination in many cases, especially involving mountainous areas where these astronomy sites are located.

As an example, the Department of Commerce Table Mountain Radio Receiving Zone seeks to ensure that field strengths received on its 1800 acre site not exceed certain predetermined levels. Experience by CDE with this site has determined that predicted signal levels are based on unattenuated field strengths where line-of-sight and near line-of-sight conditions exist. The Commission's standard prediction method is based on the transmitting antenna height above the average 3 to 16 kilometer terrain elevation as calculated along pertinent radials and assumes a receive antenna height of 9.1 meters (30 feet) above ground level. The propagation curves are used to estimate median field strength values received at 50% of the locations, 50% of the time. The prediction method ignores the effect of line-of-sight conditions and terrain barriers located beyond 16 kilometers. Accordingly for a protected radio astronomy

site on a mountaintop, the Commission's standard prediction method may underestimate received signals. Over or under engineering of a TV station Channel 36 or Channel 38 antenna may result in undue expenses when actual received fields depart widely from computed values using FCC propagation curves.

Therefore, CDE urges the Commission to allow the use of alternate predicted computational methods such as NBS Technical Note 101 where no line-of-sight exists between the TV station and astronomy sites or other appropriate prediction models.

The Commission may also wish to address measured field strengths based on test transmissions. If so, associated measurements should be mobile runs or multiple spot measurements taken using good engineering standards.

The Commission is also requested not to add other constraints on broadcast facilities on Channels other than 36 and 38 towards the 13 astronomy sites listed in MM Docket 95-17.

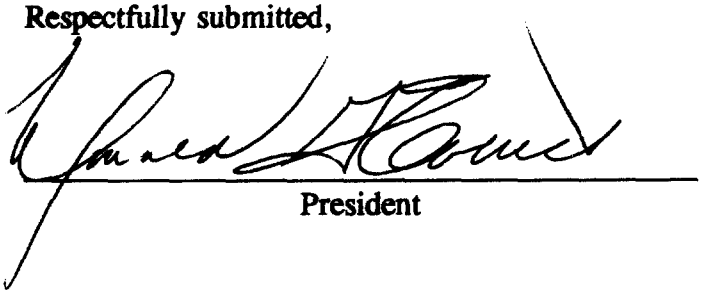
CDE agrees with the Commission that grandfathering provision concerning existing or future TV stations is not necessary since only one TV station exceeds the proposed signal level at an astronomy site.

CDE does not believe a separate notice to the astronomy sites should be required in light of the Commission's proposed rules to adequately protect the astronomy sites unless Channel 36 or 38 TV station is seeking a waiver of the Commission's rules. The Commission should be willing to entertain waiver requests if the astronomy operation provides its consent to the proposed TV operation. In addition, a waiver request should be also granted if the proposed TV

station provides equivalent protection to the astronomy site notwithstanding any objection from the astronomy operation.

We also agree with the Commission that any proposal for new Channel 36 or 38 TV allotment within 87.7 kilometers of the astronomy sites must be required to provide a necessary showing that it can comply with the Commission's 64 dBu signal level restriction.

Respectfully submitted,



President

March 31, 1995
Date